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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/003,553	10/24/2001	George Huang	00680365	5015

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EXAMINER

PHAM, TUAN

ART UNIT

PAPER NUMBER

2643

DATE MAILED: 08/19/2004

4

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/003,553

Applicant(s)

HUANG ET AL.

Examiner

TUAN A PHAM

Art Unit

2643

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 24 October 2001.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-12 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

2. Claims 1-2, 5, and 10 are rejected under 35 U.S.C. 102(e) as being anticipated by Ferianz (U.S. Patent No.: 6,522,179).

**Regarding claims 1 and 10,** Ferianz teaches a system and method for improving the signal-to-noise ratio of a differential signal comprising: first and second signal lines connected to corresponding first and second inputs of a differential amplifier (see figure 2, first input 2, second input 3, differential amplifier 6, col.3, ln.30-40); and a

means for adjusting an impedance connected to at least one of the signal lines (see col.2, ln.15-28).

**Regarding claim 2**, Ferianz further teaches the system for improving the signal-to-noise ratio further comprising a controller for selectively adjusting the means for adjusting the impedance in order to achieve and improve signal-to-noise ratio. Ferianz fails to explicitly teach improving the signal-to-noise ratio. However, Ferianz teaches matching impedance of the input and output of the differential amplifier in order to avoid signal reflections on the line (see col.1, ln.39-41). Therefore, the signal-to-noise ratio is inherently improved.

**Regarding claim 5**, Ferianz further teaches the system for improving the signal-to-noise ratio further comprising a means for adjusting an impedance connected to each of said first and second signal lines (see figure 2, col.2, ln.15-29).

3. Claims 6-9 are rejected under 35 U.S.C. 102(b) as being anticipated by Anderson (U.S. Patent No.: 5,493,246).

**Regarding claim 6**, Anderson teaches a system for improving the signal-to-noise ratio of a differential signal comprising: first and second signal lines connected to corresponding first and second inputs of a differential amplifier (see figure 1, first signal line Vin1, second signal line Vin2, differential amplifier 14; and a plurality of impedance members selectively connected to at least one of the signal lines with a plurality of switches (see figure 2, plurality of impedance 36-44', signal line Vin1, switch 38-46", col.2, ln.20-62).

**Regarding claim 7**, Anderson further teaches the system for improving the signal-to-noise ratio further comprising a controller for selectively connecting the impedance members with the switches in order to achieve an improved signal-to noise ratio. Anderson fails to explicitly teach improving the signal-to-noise ratio. However, Anderson teaches impedance blocking of the input of the differential amplifier in order to cancel the leakage current in analog signal. Therefore, the signal-to-noise ratio is inherently improved.

**Regarding claim 8**, Anderson further teaches the system for improving the signal-to-noise ratio wherein at least some of the impedance elements are capacitors (see figure 2, col.2, ln.20-40).

**Regarding claim 9**, Anderson further teaches the system for improving the signal-to-noise ratio further comprising a plurality of impedance members selectively connected to each of the signal lines with a plurality of switches (see figure 2, col.2, ln.20-60).

### ***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of

the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

5. Claims 3-4, and 11-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ferianz (U.S. Patent No.: 6,522,179) in view of Anderson (U.S. Patent No.: 5,493,246).

**Regarding claims 3 and 11**, Ferianz teaches a system and method for improving the signal-to-noise ratio of a differential signal comprising: first and second signal lines connected to corresponding first and second inputs of a differential amplifier (see figure 2, first input 2, second input 3, differential amplifier 6, col.3, ln.30-40); and a means for adjusting an impedance connected to at least one of the signal lines (see col.2, ln.15-28).

It should be noticed that Ferianz fails to clearly teach a plurality of impedance elements selectively connected to at least one of the signal lines by a corresponding plurality of switch members. However, Anderson teaches such features (see figure 2, col.2, ln.20-62) for a purpose of controlling the leakage current on the line.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the use of plurality of impedance elements selectively connected to at least one of the signal lines by a corresponding plurality of

switch members, as taught by Anderson, into view of Ferianz in order to avoid signal reflections on the line.

**Regarding claims 4 and 12**, Ferianz further teaches the system for improving the signal-to-noise ratio wherein at least some of the impedance elements are capacitors (see figure 2, col.2, ln.20-40).

### **Conclusion**

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. In order to expedite the prosecution of this application, the applicants are also requested to consider the following references. Although Kennedy et al. (U.S. Patent No. 6,304,141), Fong et al. (U.S. Patent No. 6,707,023), Tennen (U.S. Patent No. 6,580,286), and Rokhsaz (U.S. Patent No. 6,566,950) are not applied into this Office Action; they are also called to Applicants attention. They may be used in future Office Action(s). These references are also concerned for supporting the system and method for providing differential line driver that includes an amplification stage.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Tuan A. Pham** whose telephone number is (703) 305-4987. The examiner can normally be reached on Monday through Friday, 8:00 AM-5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. Curtis Kuntz can be reached on (703) 305-4708 and

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Drive, Arlington VA, Sixth Floor (Receptionist, tel. No. 703-305-4700).

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Business Center (EBC) at 866-217-9197 (toll-free).

Art Unit 2643  
August 12, 2004  
Examiner

Tuan Pham

  
**DUC NGUYEN**  
**PRIMARY EXAMINER**